

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte PAUL J. RUDECK,  
FRANCIS BENISTANT and KELLY HURLEY

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Appeal No. 2003-2124  
Application No. 09/769,162

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ON BRIEF

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Before KIMLIN, PAK and WARREN, Administrative Patent Judges.  
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-10, 12-21 and 45-67, all of the claims remaining in the present application.

Claim 1 is illustrative:

1. A method comprising:

defining a memory cell structure on a substrate;

Appeal No. 2003-2124  
Application No. 09/769,162

depositing a layer of phosphorous doped oxide over the substrate;

selectively removing horizontal surfaces of the layer of phosphorous doped oxide while leaving vertical surfaces of the phosphorous doped oxide, wherein the horizontal surfaces are substantially planar to a surface of the substrate and the vertical surfaces are substantially perpendicular to the surface of the substrate; and

performing re-oxidization on the substrate, wherein the layer of phosphorous doped oxide modifies the re-oxidation so that a width of a modified re-oxidation oxide profile is reduced when compared to a width of a re-oxidation oxide profile in the absence of the layer of phosphorous doped oxide.

In the rejection of the appealed claims, the examiner relies upon the following references:

Nakajima et al. (Nakajima)	5,397,724	Mar. 14, 1995
Chen	6,235,581	May 22, 2001
		(filed Jul. 01, 1998)

Appellants' claimed invention is directed to a method of manufacturing semiconductors which entails a modified source/drain re-oxidation process. The method comprises utilizing a layer of phosphorous doped oxide for modifying the re-oxidation oxide profile such that the width of the profile is reduced in comparison to the re-oxidation oxide profile wherein a phosphorous doped oxide is not used. According to appellants'

specification, "[a]s the thickness of this profile increases, reliability and data retention increases while erase rates or speeds worsen" (page 2, lines 18-20).

Appealed claims 1-5, 7-9, 12-13, 15-16, 49-50, 54, 57-58, 61-62 and 65 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nakajima. Claims 10, 18, 45-48, 52-53, 55-56, 59-60 and 63-64 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nakajima, whereas claims 6, 14, 17, 19-21, 51 and 66-67 stand rejected under § 103 as being unpatentable over Nakajima in view of Chen.

The appellants submit that the appealed claims do not stand or fall together and "each independent claim will be separately argued" (page 4 of principal brief, fourth paragraph). However, the Arguments section of appellants' brief fails to present an argument that is reasonably specific to any particular claim on appeal. Accordingly, all the appealed claims stand or fall together with claim 1.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we find that the examiner's rejections are well-founded and supported by the prior art

evidence relied upon. Accordingly, we will sustain the examiner's rejections for the reasons set forth in the answer, which we incorporate herein, and we add the following primarily for emphasis.

There is apparently no dispute that Nakajima, like appellants, discloses a method of making a memory cell structure by depositing a layer of phosphorous doped oxide over a substrate and performing re-oxidation on the substrate. As appreciated by the examiner, however, Nakajima does not expressly teach that the presence of the phosphorous doped oxide modifies the re-oxidation oxide profile such that its thickness is reduced compared to a method wherein a layer of phosphorous doped oxide is not used. Based on this lack of teaching in Nakajima, it is appellants' contention that the examiner's finding that the Nakajima method inherently results in a reduction in the width of the profile is based on unwarranted speculation.

It is well settled that when a claimed process reasonably appears to be substantially the same as a process disclosed by the prior art, the burden is on the applicant to prove that the prior art process does not necessarily or inherently possess the

characteristics attributed to the claimed process. In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In the present case, contrary to appellants' arguments, the examiner has set forth a rationale which provides support for the legal conclusion of inherency. In particular, the examiner sets forth the following reasoning:

In this case, much of the technical reasoning is provided by applicant's own disclosure. For example, applicant states that phosphorous doped oxide is a barrier to oxygen (see page 15-line 20 to page 16-line 5 of applicant's specification). While there is an oxide layer 6 between the substrate 2 and phosphorous doped oxide spacer 30 which will block some of the oxygen atoms from the atmosphere during the oxidation from creating a reoxidation profile, the oxide layer 6 will not block the complete effect of the phosphorous doped oxide spacer 30 as being an oxygen barrier. For example, oxygen atoms will not only be traveling in such a way as to be blocked by the oxide layer 6 but they will also be in a region overlying the spacer 30. Therefore, oxygen atoms attempting to diffuse through the spacer to a region underlying the floating gate so as to create a reoxidation profile will be restricted from doing so by the presence of the spacer 30. For this reason, it is certain that the spacer 30 acts to reduce the total number of oxygen atoms under the floating gate and thus reduce the width of the reoxidation profile as compared to the case where the spacer 30 is not present. For these reasons, the limitation is inherently disclosed in the reference.

(paragraph bridging pages 7 and 8 of answer).

We have reviewed appellants' principal and reply brief on appeal for any rebuttal to the examiner's reasoning, but none is present. Indeed, appellants have proffered no reasoning or objective evidence which demonstrates that the re-oxidation process of Nakajima would not result in a reduction in the width of the re-oxidation oxide profile compared to when no layer of phosphorous doped oxide is used. In our view, the examiner's rationale has shifted to appellants the burden of at least explaining why the examiner's reasoning is in error, and why the method of Nakajima would not necessarily result in a reduction in the width of the re-oxidation oxide. However, no such argument has been presented by appellants.

We do not understand appellants' argument appearing at page 7 of the principal brief, penultimate paragraph. Appellants maintain that Nakajima does not disclose every claim limitation because the reference provides a phosphorous containing layer over gate insulating 6, whereas independent claims 1, 8, 12, 13, 16, 19, 49, 54, 58, 62, and 65 require "depositing a layer of phosphorous doped oxide over the substrate." However, as readily admitted by appellants, the present specification defines the

term "over" as above or in contact with the surface of the substrate. Manifestly, as explained by the examiner, the phosphorous containing layer of Nakajima is over the substrate.

Appellants also take issue with the examiner's citation of the instant specification as teaching that a phosphorous doped oxide is a barrier to oxygen. According to appellants, "[a]bsent a statutory bar, a patent applicant's teachings in his own specification may not be used against him." (page 2 of reply brief, second paragraph). However, it is permissible for an examiner to rely upon an admission of facts in the specification in formulating the rejection. In the present case, the examiner is simply citing an admission by appellants that the layer of phosphorous doped oxide is a barrier to oxygen.

In conclusion, based on the foregoing, and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

Appeal No. 2003-2124  
Application No. 09/769,162

No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
§ 1.136(a).

AFFIRMED

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
	)	
	)	
CHUNG K. PAK	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
CHARLES F. WARREN	)	
Administrative Patent Judge	)	

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Appeal No. 2003-2124  
Application No. 09/769,162

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